

Notice of Allowability

Application No.

10/799,566

Examiner

Dirk Wright

Applicant(s)

KITAGAWA ET AL.

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3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☒ The drawings filed on 11 March 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 03112004
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Claims Allowed

Claims 1-18 are allowable over the prior art of record. The claims are allowed because the prior art does not anticipate nor render obvious the claimed combination of: a transmission state determination method of a power transmission device for an internal combustion engine driven vehicle for determining whether said power transmission device is in a state of cutting power transmission or a state of transmitting power, said vehicle comprising: an internal combustion engine incorporated in a vehicle body having drive wheels; an AC generator incorporated in said vehicle body and driven by said internal combustion engine; mode selection means for selecting a control mode of said internal combustion engine between a control mode for driving vehicle and a control mode for generating electric power; and a generation control unit having rotational speed control means for generating electric power for controlling an intake air amount of said internal combustion engine so as to rotate said internal combustion engine at a rotational speed required for generating predetermined power from said generator when the control mode for generating electric power is selected by said mode selection means, wherein said power transmission device has a transmission with a gear position for cutting power transmission and an automatic clutch mechanism and is provided between a crankshaft of said internal combustion engine and said drive wheels, and a displacement sensor that can detect movement of said vehicle body is provided, said method comprises steps of; gradually increasing the intake air amount of said internal combustion engine while a rotational speed of said internal combustion engine is monitored when said control mode for generating electric power selected, and determining that said power transmission device is in the state of transmitting power when said displacement sensor detects movement of said vehicle body in the step of gradually increasing

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said intake air amount, and that said power transmission device is in the state of cutting power transmission when said displacement sensor does not detect movement of said vehicle body before the rotational speed of said internal combustion engine exceeds a preset reference rotational speed in the step of gradually increasing said intake air amount; or: determination method of a power transmission device for an internal combustion engine driven vehicle for determining whether said power transmission device is in a state of cutting power transmission or a state of transmitting power, said vehicle comprising: an internal combustion engine incorporated in a vehicle body having drive wheels; or: a transmission state an AC generator incorporated in said vehicle body and driven by said internal combustion engine; mode selection means for selecting a control mode of said internal combustion engine between a control mode for driving vehicle and a control mode for generating electric power; and a generation control unit having rotational speed control means for generating electric power for controlling an intake air amount of said internal combustion engine so as to rotate said internal combustion engine at a rotational speed required for generating predetermined power from said generator when the control mode for generating electric power is selected by said mode selection means, wherein said power transmission device has a transmission with a gear position for cutting power transmission and an automatic clutch mechanism and is provided between a crankshaft of said internal combustion engine and said drive wheels, and a vehicle speed sensor that generates a vehicle speed pulse for each rotation of an axle of said vehicle through a certain angle is used as a displacement sensor, and said method comprises steps of: gradually increasing an intake air amount of said internal combustion engine while a rotational speed of said internal combustion engine is monitored when said control mode for generating electric power is selected, and

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determining that said power transmission device is in the state of transmitting power when generation of the vehicle speed pulse by said vehicle speed sensor is detected in the process of gradually increasing said intake air amount, and that said power transmission device is in the state of cutting power transmission when generation of the vehicle speed pulse by the vehicle speed sensor is not detected before the rotation speed of said internal combustion engine exceeds a preset reference rotational speed in the process of gradually increasing said intake air amount; or: a transmission state determination method of a power transmission device for an internal combustion engine driven vehicle for determining whether said power transmission device is in a state of cutting power transmission or a state of transmitting power, said vehicle comprising; an internal combustion engine incorporated in a vehicle body having drive wheels; an AC generator incorporated in said vehicle body and driven by said internal combustion engine; mode selection means for selecting a control mode of said internal combustion engine between a control mode for driving vehicle and a control mode for generating electric power; and a generation control unit having rotational speed control means for generating electric power for controlling an intake air amount of said internal combustion engine so as to rotate said internal combustion engine at a rotational speed required for generating predetermined power from said generator when the control mode for generating electric power is selected by said mode selection means, wherein said power transmission device has a transmission with a gear position for cutting power transmission and an automatic clutch mechanism and is provided between a crankshaft of said internal combustion engine and said drive wheels, and ' a vehicle speed sensor that generates a vehicle speed pulse for each rotation of an axle of said vehicle through a certain angle is used as a displacement sensor, and said method comprises steps of; gradually increasing a intake air

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amount of said internal combustion engine while a rotational speed of said internal combustion engine is monitored when said control mode for generating electric power is selected, and determining that said power transmission device is in the state of transmitting power when a vehicle speed obtained from said vehicle speed pulse reaches a set determination reference value or higher in the process of gradually increasing said intake air amount, and that said power transmission device is in the state of cutting power transmission when the vehicle speed obtained from said vehicle speed pulse does not reach said set determination reference value before the rotational speed of said internal combustion engine exceeds a preset reference rotational speed in the process of gradually increasing said intake air amount; or: A runaway prevention device of an internal combustion engine driven vehicle for preventing runaway of said internal combustion engine driven vehicle when a control mode for generating electric power is selected, said internal combustion engine driven vehicle comprising: an internal combustion engine incorporated in a vehicle body having drive wheels; a power transmission device that has a transmission with a gear position for cutting power transmission and an automatic clutch mechanism that enters a state of transmitting power when a rotational speed of the internal combustion engine reaches a predetermined power transmission start rotational speed or higher, and is provided between a crankshaft of said internal combustion engine and said drive wheels; an actuator that operates means for adjusting an intake air amount of said internal combustion engine; an AC generator incorporated in said vehicle body and driven by said internal combustion engine; mode selection means for selecting a control mode of said internal combustion engine between a control mode for driving vehicle and a control mode for generating electric power; and a generation control unit having rotational speed control means for generating electric power for controlling the

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intake air amount of said internal combustion engine so as to rotate said internal combustion engine at a rotational speed required for generating predetermined power from said generator when the control mode for generating electric power is selected by said mode selection means, wherein said runaway prevention device comprises: rotational speed detection means for detecting a rotational speed of said internal combustion engine; a displacement sensor that detects movement of said vehicle body; intake air amount control means for determining transmission state for controlling said actuator so as to gradually increase the intake air amount of said internal combustion engine where the control mode for generating electric power is selected by said mode selection means; determination means for determining that said power transmission device is in a state of transmitting power when said displacement sensor detects movement of said vehicle body in the process of gradually increasing said intake air amount by said intake air amount control means for determining transmission state, and that said power transmission device is in a state of cutting power transmission when said displacement sensor does not detect movement of said vehicle body before the rotational speed detected by said rotational speed detection means exceeds a set reference rotational speed in the process of gradually increasing said intake air amount; and\ safety means for controlling said internal combustion engine so as to return the rotation speed of said internal combustion engine to a rotation speed less than said power transmission start rotational speed or to stop said internal combustion engine when said determination means determines that said power transmission device is in the state of transmitting power.

No particular single feature of the claim renders the claim as a whole patentable. Only the claim taken as a whole combination is deemed new and unobvious.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art Discussed

The examiner has considered the references cited by applicant in his Information Disclosure Statement filed concurrently with the application. None of the references show all of the features of the claimed invention.

The reference cited by the examiner is deemed pertinent to applicant's disclosure. Boggs '277 shows a hybrid electric vehicle control system.

Conclusion

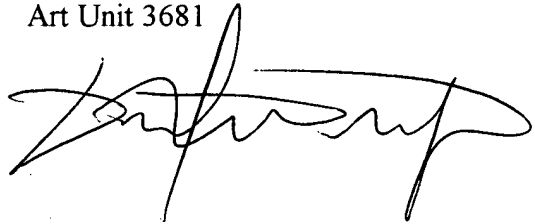
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dirk Wright whose telephone number is 571-272-7098. The examiner can normally be reached on Monday through Friday, 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dirk Wright
Primary Examiner
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A handwritten signature in black ink, appearing to read 'Dirk Wright', is written over the printed name and title.

DW
Thursday, July 07, 2005